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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,674	03/24/2004	Takahiro Ishikawa	789_126	4305

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EXAMINER	
DINH, TUAN T	

ART UNIT	PAPER NUMBER
2841	

MAIL DATE	DELIVERY MODE
08/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/807,674	ISHIKAWA ET AL.	
	Examiner	Art Unit	
	Tuan T. Dinh	2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) *1-7* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8 and 9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/25/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Noted: the reference Ishikawa et al. (U.S. Patent 6,110,577) shows in figure 3 that the copper having a thermal conductivity greater than 150W/mK.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. (6,261,703) in view of Fashii et al. (U.S. Patent 5,354,415).

As to claim 8, Sasaki et al. discloses a heat spreader module as shown in figure 13 constructed by supplying active hard brazing materials each containing: an active element (2c), formed between a pedestal (1b), a heat spreader member (3b), an insulating board (1a), and a metal plate (2a), and pressing and heating said pedestal, said heat spreader member, said insulating board, and said metal plate to melt said active hard brazing materials, thereby joining said pedestal, said heat spreader member, said insulating board, and said metal plate together, said active hard brazing materials being supplied such that said active hard brazing materials have a thickness ranging from 3 to 20 μm (column 8, lines 30-34) when said active hard brazing materials are melted, and said heat spreader member having a thermal conductivity of

150W/mK or greater (the heat spreader is a conductor layer made by copper (Cu) having thermal conductivity of greater than 150W/mK, see noted as above).

Sasaki et al. does not specific disclose the amount of the active element ranging from 426.8-1200 $\mu g/cm^2$ and the metal plate including a marginal edge of alloy having width within a range of 200 μm. Fashii et al. shows a ceramic circuit board as shown in figures 1-4 comprising a brazing material having an active metal Ti having a bonding strength of 5-15mg/cm^2 and having a width in range of 200 μm.

It would have been obvious to one having ordinary skill in the at the time the invention was made to have an amount of weight in a range of 426.8-1200 $\mu g/cm^2$ of the active element in order to provide excellent bonding and the metal plate having width within a range of 200 μm in order to provide minimum sized and easy for pressure and melt, bond on the insulation board, since it has been held that where the general condition of the claim are disclose in the prior art and discovering an optimum value of a result effective variable involves only routine skill in the art. In re Aller, 105 USPQ 233 and In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). It would have been obvious to one having ordinary skill in the at the time the invention was made to have an amount of weight in a range of 426.8-1200 $\mu g/cm^2$ of the active element in order to provide excellent bonding and the metal plate having width within a range of 200 μm in order to provide minimum sized and easy for pressure and melt, bond on the insulation board as taught by Fashii employed in the module of Sasaki.

As to claim 9, Sasaki et al. discloses said metal plate (2a) has an alloyed (brazing alloy) region including constituent elements of said active hard brazing materials.

Response to Arguments

3. Applicant's arguments with respect to claims 8-9 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T. Dinh whose telephone number is 571-272-1929. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reichard Dean can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tuan Dinh
August 10, 2007.

TUAN T. DINH
PRIMARY EXAMINER